

MEMORANDUM

To: Billy Meyer

From: Christie Zawtocky, PE

Date: April 21, 2016

Project: One Hour Martinizing Site, DSCA ID 32-0013
1103 W Club Blvd, Durham, NC

Subject: Project Update

Hart & Hickman, PC (H&H) is submitting this update regarding limited monitoring activities completed at the One Hour Martinizing site in March 2016. The monitoring was conducted approximately eight months after completion of the July 2015 PlumeStop™ injection and approximately twenty-six months after the January 2014 EHC injection on the source property. A brief summary of recent monitoring activities is provided below, and an updated project calendar is provided in Attachment A.

Soil Vapor Field Screening

H&H completed a soil vapor field screening event at the site in March 2016. The event included measuring total volatile organic compounds (VOCs), methane, carbon dioxide, and oxygen in soil vapor, indoor air, and outdoor ambient air. The primary purpose of the sampling is to confirm methane levels remain within acceptable standards despite increased post-injection concentrations of methane in groundwater. Measurements were collected at the following locations:

- Soil Vapor Monitoring Points: SV-8S, SV-14, SV-20S, SV-27S, SV-29S, SV-36S, and SV-55S
- Excavation Vent Exhaust Pipe
- Indoor Air at 1414 Watts St (Triangle Family Church)
- Ambient, Outdoor Air on Source Property

Please note that field screening was planned for SV-8I and SV-27D; however, the points could not be screened due to moisture in the tubing.

The field screening data are summarized in the attached Table 1, and the methane readings are shown on the attached Figure 1, along with historical readings collected at the site. Recorded field measurements indicate that methane was only detected at low concentrations of 0.1 to 0.2% by volume in the soil vapor monitoring points during the March 2016 field screening event. These methane readings are well within acceptable levels.

Methane was detected at a concentration of 8.2% by volume in the vapors from the excavation passive exhaust vent during the March 2016 sampling event. Vapors from the vent are exhausted into the atmosphere through the stack installed on the source property where they dissipate into the atmosphere. Ambient air monitoring conducted near ground level in the immediate vicinity of the exhaust vent did not detect any measurable methane.

Low levels of methane (0.1% by volume) were detected in the sub-slab depressurization system exhaust and indoor air at the Triangle Family Church at 1414 Watts St. These methane readings are well within acceptable levels.

VOCs were detected in each of the monitored soil vapor points, except SV-55S. The highest VOC concentration was detected south of the source property at 1414 Watts Street in soil vapor point SV-27D (6238 ppm).

Soil Gas Sampling Activities

H&H conducted a sampling event at the site in March 2016. The following soil gas sample points were sampled during the January 2015 event:

- 1103 W. Club Blvd (Source Property): SV-8S, SV-14, SV-55S
- 1414 Watts St (Triangle Family Church): SV-27S
- 1421 Dollar Ave (Residence): SV-20S
- 1419 Dollar Ave (Residence): SV-29S
- 1417 Dollar Ave (Residence): SV-36S

Samples were collected from each location and analyzed for the dry-cleaning solvent tetrachloroethylene (PCE) and its degradation products, trichloroethylene (TCE), cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, and vinyl chloride using EPA Method TO-15.

The soil gas sample analytical results are summarized in the attached Table 2 and shown on Figure 2. In general, PCE soil gas concentrations on the source property were lower in March 2016 compared to previous post-injection soil gas data. For the properties to the east and south, the March 2016 soil gas concentrations were generally within the range of previous post-injection concentrations with no clear trends. Graphs depicting PCE concentrations over time for the sampled soil gas monitoring points are provided in Attachment B.

Future Sampling Activities

The following additional sampling activities are planned through January 2017, as shown in the calendar in Attachment A.

Groundwater

Groundwater sampling events are planned for July 2016 and January 2017 to further evaluate the effectiveness of the PlumeStop® and EHC injections. During the July 2016 event, samples will

be collected from the following wells within and downgradient of the PlumeStop® injection area: MW-3R, MW-4R, MW-11, and MW-24S. The samples will be analyzed for VOCs, methane, ethane, ethene, and total organic carbon (TOC). Field measurements of dissolved oxygen (DO), oxidation-reduction potential (ORP), temperature, pH, and conductivity will also be collected. Samples from MW-4R and MW-24S will also analyzed for RCRA metals.

During the January 2017 event, samples will be collected from the following monitoring wells:

- Source property: MW-3R, MW-4R, MW-22S, MW-23S, MW-24S
- North of source property: MW-11
- South of source property: MW-15S, MW-18
- East of source property: MW-14S, MW-16S

Samples from all of the wells will be analyzed for VOCs and will be field measured for DO, ORP, temperature, pH, and conductivity: In addition, samples from MW-4R, MW-15S, MW-22S, MW-23S, and MW-24S will be analyzed for methane, ethane, and ethene, and samples from MW-4R and MW-24S will be analyzed for RCRA metals.

TABLES

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements **ADT 1**

DSCA ID No.: DC320013

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm			
SV-8S	5.0	11/27/12	427	0.1	1.7	20.0
		01/08/13	1,833	0.8	2.2	18.7
		02/07/13	NA	0.1	2.0	19.2
		03/08/13	NA	0.0	2.4	18.8
		04/08/13	465	0.0	2.4	17.7
		05/08/13	473	0.0	4.1	15.7
		06/13/13	360	0.0	5.7	13.7
		07/08/13	349	0.0	5.8	13.4
		08/14/13	427	0.1	5.4	15.6
		09/11/13	423	0.2	4.1	15.1
		10/09/13	313	0.3	3.0	18.0
		11/13/13	385	0.2	3.4	16.2
		12/19/13	390	0.2	3.1	16.1
		01/08/14	492	0.2	3.8	18.4
		02/03/14	50.8	0.1	1.5	19.5
		02/17/14	140	0.0	1.5	18.8
		03/17/14	109	0.0	2.0	18.4
		04/14/14	164	0.0	3.0	16.2
		05/22/14	324	0.0	8.0	8.4
		SV-14	5.0	06/17/14	68.9	0.0
07/15/14	5120			0.0	9.6	10.3
10/14/14	58.2			0.0	10.3	8.6
01/13/15	99			0.0	6.5	12.3
03/15/16	135			0.1	7.1	11.0
05/22/14	220			0.0	5.8	13.3
SV-20S	5.0	11/27/12	75.5	0.0	6.3	16.1
		01/08/13	15.0	1.3	5.0	16.9
		02/07/13	NM	0.1	6.4	15.5
		03/08/13	NM	0.0	5.0	16.0
		04/08/13	47.4	0.0	5.2	15.3
		05/08/13	62.5	0.0	6.3	14.6
		06/13/13	64.0	0.0	7.7	13.1
		08/15/13	61.8	0.0	6.8	13.6
		09/11/13	60.4	0.1	5.1	15.3
		10/09/13	89.7	0.1	7.0	15.3
		11/13/13	78.1	0.0	6.8	14.4
		12/19/13	84.1	0.0	7.2	14.8
		01/08/14	104.0	0.0	7.3	15.5
		02/03/14	20.8	0.2	2.5	19.3
		02/17/14	28.4	0.0	3.4	18.4
		03/17/14	7.6	0.0	4.7	18.8
		04/14/14	13.4	0.0	3.5	17.3
		05/23/14	80.5	0.0	4.3	15.7
		06/17/14	81.4	0.0	5.2	15.8
		07/15/14	42.4	0.0	5.5	15.6
10/14/14	88.1	0.0	6.8	14.6		
01/13/15	52.5	0.0	3.4	18.0		
03/15/16	398	0.1	4.8	15.4		

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DSCA ID No.: DC320013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
SV-27S	8.0	05/22/14	250	0.0	5.4	10.9
		06/17/14	157	0.0	1.9	17.5
		07/15/14	445	0.0	5.0	15.5
		10/14/14	441	0.0	3.2	18.1
		01/13/15	203	0.0	3.3	17.4
		03/15/16	1912	0.2	3.8	14.7
SV-27D	20.0	06/17/14	254	0.0	0.2	19.9
		07/15/14	130	0.0	0.5	19.4
		10/14/14	1364	0.0	11.5	9.2
		01/13/15	546	0.0	14.2	10.8
		03/15/16	6238	NM	NM	NM
SV-29S	5.0	11/27/12	344	0.0	1.9	19.9
		01/08/13	96.3	0.3	2.0	19.8
		02/07/13	NM	0.1	2.3	18.6
		03/08/13	NM	0.0	2.8	17.6
		04/08/13	235	0.0	2.6	17.2
		05/08/13	151	0.0	3.3	16.7
		06/13/13	197	0.0	3.6	16.2
		08/14/13	317	0.1	3.4	17.7
		09/11/13	268	0.1	2.2	17.6
		10/09/13	356	0.0	3.2	18.0
		11/13/13	294	0.0	2.8	17.8
		12/19/13	264	0.0	3.1	15.4
		01/08/14	475	0.0	3.4	18.8
		02/03/14	266	0.2	1.2	20.6
		02/17/14	104	0.0	1.0	20.6
		03/17/14	56.4	0.0	0.7	20.6
		04/14/14	117	0.0	0.9	19.5
		05/23/14	22.3	0.0	1.9	18.7
		06/17/14	169	0.0	1.4	18.4
		07/15/14	204	0.0	2.9	17.0
01/13/15	163	0.0	2.8	18.2		
03/15/16	1806	0.0	3.3	15.9		
SV-36S	8.0	06/17/14	341	0.0	2.9	15.9
		07/15/14	355	0.0	3.5	15.3
		10/14/14	353	0.0	4.4	16.3
		01/13/15	224	0.0	4.2	18.0
		03/15/16	1479	0.1	4.1	15.4

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements **ADT 1**

DSCA ID No.: DC320013

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm			
SV-55S	5.0	11/27/12	430	0.2	0.2	21.1
		01/08/13	295	4.1	3.0	14.7
		02/07/13	NM	2.1	2.8	14.6
		03/08/13	NM	1.8	3.1	14.0
		04/08/13	311	1.4	3.0	14.3
		05/08/13	290	1.1	3.9	13.3
		06/13/13	295	0.8	4.5	11.8
		07/08/13	258	0.7	4.9	11.1
		08/14/13	133	0.2	1.8	17.8
		09/11/13	229	0.9	5.5	10.6
		10/09/13	501	0.8	5.4	13.6
		11/13/13	444	0.4	4.8	11.1
		12/19/13	421	0.6	4.2	16.2
		01/08/14	191	0.6	5.2	14.0
		02/03/14	58.3	0.4	3.6	18.1
		02/17/14	NM	NM	NM	NM
		03/17/14	7.3	0.3	1.4	19
		04/14/14	57.3	0.0	2.3	17.1
		05/22/14	176	0.1	5.3	11.3
		06/17/14	23.9	0.0	0.9	19.4
		07/15/14	102	0.0	0	20.1
10/14/14	114	0.0	4.1	14.8		
01/13/15	71	0.0	3.2	16.5		
03/15/16	0.0	0.1	2.8	15.1		
Vent Exhaust Pipe		11/27/12	38.0	12.5	11.1	9.7
		01/08/13	173	11.0	9.3	10.6
		02/07/13	NM	17.3	15.9	1.5
		03/08/13	NM	16.4	15.0	1.7
		04/08/13	6.5	12.6	11.7	4.9
		05/08/13	10.8	15.0	14.4	1.9
		06/13/13	9.6	14.9	13.4	0.7
		07/08/13	9.6	14.5	13.0	0.8
		08/14/13	17.7	15.2	14.5	1.7
		09/11/13	14.7	15.7	13.4	1.5
		10/09/13	16.0	13.8	10.4	6.7
		11/13/13	15.8	12.9	11.1	4.4
		12/19/13	12.8	10.9	10.0	3.8
		01/08/14	9.2	8.7	12.0	5.1
		02/03/14	7.5	0.2	0.0	21.9
		02/17/14	30.7	23.2	16.2	6.1
		03/17/14	0.0	0.0	0.0	21.6
		04/14/14	0.0	6.4	6.1	13.2
		05/22/14	287.0	4.2	4.3	14.1
		06/17/14	580	4.6	4.6	14.1
		07/15/14	70	0.0	0.0	20.0
10/14/14	6.0	11.9	12.7	2.2		
01/13/15	7.7	0.0	0.1	21.6		
03/15/16	42.8	8.2	9.2	1.1		

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Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm			
SSD System Triangle Family Church 1414 Watts Street		11/27/12	2.4	0.1	0.0	21.0
		01/08/13	159	1.0	0.0	21.1
		02/07/13	NM	0.2	0.0	21.4
		03/08/13	NM	0.0	0.0	20.8
		04/08/13	0.0	0.0	0.0	20.8
		05/08/13	0.0	0.0	0.0	20.6
		06/13/13	0.0	0.0	0.0	20.4
		07/08/13	0.0	0.0	0.0	20.5
		08/14/13	4.4	0.1	0.0	20.5
		09/18/13	0.5	0.1	0.0	20.2
		10/09/13	6.1	0.1	0.1	21.1
		11/13/13	4.6	0.0	0.0	20.8
		12/19/13	5.2	0.0	0.0	21.4
		01/08/14	NM	NM	NM	NM
		02/03/14	NM	NM	NM	NM
		02/19/14	0.0	0.0	0.1	21.1
		03/17/14	0.0	0.0	0.0	21.4
		04/14/14	0.0	0.0	0.0	20.8
		05/22/14	NM	NM	NM	NM
		06/17/14	0.0/0.0	0.0/0.0	0.0/0.0	20.6/20.9
	07/15/14	29.2/23.5	0.0/0.0	0.0/0.0	20.2/20.1	
	10/14/14	0.0/0.0	0.0/0.0	0.0/0.0	20.9/20.9	
	01/13/15	NM	NM	NM	NM	
	03/15/16	32.5/34.5	0.1/0.1	0.0/0.0	20.5/20.6	
Indoor Air Triangle Family Church 1414 Watts Street		11/27/12	0.0	0.0	0.0	21.0
		01/08/13	0.0	0.0	0.0	20.9
		02/07/13	NM	0.0	0.0	20.8
		03/08/13	NM	0.0	0.0	21.0
		04/08/13	0.0	0.0	0.0	20.9
		05/08/13	0.0	0.0	0.0	20.5
		06/13/13	0.0	0.0	0.0	20.5
		07/08/13	0.0	0.0	0.0	20.5
		08/14/13	0.0	0.1	0.0	20.6
		09/18/13	0.0	0.0	0.0	20.3
		10/09/13	0.0	0.1	0.0	21.2
		11/13/13	0.0	0.0	0.0	20.8
		12/19/13	0.0	0.0	0.0	21.2
		01/08/14	NM	NM	NM	NM
		02/03/14	NM	NM	NM	NM
		02/17/14	0.0	0.0	0.1	21.1
		03/17/14	0.0	0.0	0.0	21.6
		04/14/14	NM	NM	NM	NM
		05/22/14	0.0	0.0	0.0	20.6
		06/17/14	0.0	0.0	0.0	20.9
	07/16/14	0.0	0.0	0.0	20.6	
	10/14/14	0.0	0.0	0.0	20.9	
	01/13/15	0.0	0.0	0.0	21.2	
	03/15/16	0.1	0.1	0.0	20.7	

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements **ADT 1**

DSCA ID No.: DC320013

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
Ambient, Outdoor Air (near excavation area on subject site)		11/27/12	0.0	0.0	0.0	20.9
		01/08/13	0.0	0.0	0.0	20.9
		02/07/13	NM	0.0	0.0	21.5
		03/08/13	NM	0.0	0.0	20.9
		04/08/13	0.0	0.0	0.0	20.5/20.6
		05/08/13	0.0	0.0	0.0	20.4
		06/13/13	0.0	0.0	0.0	20.4
		07/08/13	0.0	0.0	0.0	20.4
		08/14/13	0.0	0.0	0.0	20.6
		09/11/13	0.0	0.0	0.0	20.3
		10/09/13	0.0	0.3	0.0	21.3
		11/13/13	0.0	0.0	0.0	22.1
		12/19/13	0.0	0.0	0.0	22.4
		01/08/14	0.0	0.2	0.2	20.6
		02/03/14	0.5	0.1	0.0	21.3
		02/17/14	0.0	0.0	0.1	21.3
		03/17/14	0.0	0.0	0.0	21.3
		04/14/14	0.0	0.0	0.0	21.2
		05/22/14	0.0	0.0	0.0	20.9
		06/17/14	0.0	0.0	0.0	20.9
		07/16/14	0.0	0.0	0.0	20.7
		10/14/14	0.0	0.0	0.0	20.9
	01/13/15	0.0	0.0	0.0	20.8	
	03/15/16	0.0	0.1	0.0	20.8	

Notes:
 1. VOC concentrations measured using a photoionization detector (PID)
 2. Methane, carbon dioxide, and oxygen concentrations measured using GEM 2000 multi-gas meter.
 3. NM denotes not measured; NA denotes not available.
 4. New sub-slab depressurization (SSD) systems were installed at the Triangle Family Church in May 2014. Subsequent readings are reported for the front fan/rear fan.
 5. SV-55I reinstalled on 6/27/14.

Table 2: Analytical Data for Soil Gas

ADT 2

DSCA ID No.: DC320013

Sample ID	Depth [feet bgs]	Sample Duration ¹	Sampling Date (mm/dd/yy)	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
				[$\mu\text{g}/\text{m}^3$]				
SV-8S	5	N/A	05/29/09	<6,300	2,600,000	<6,300	<8,600	<4,100
		16m	05/16/12	<63	88,000	<63	<86	<41
		10m	11/27/12	<7,900	1,000,000	<7,900	12,000	<5,100
		N/A	01/08/13	<1,600	1,600,000	<1,600	<2,100	<1,000
		1h	10/09/13	<4.0	3,400	<4.0	<5.4	<2.6
		1h 20m	12/17/13	<7,900	5,000,000	<7,900	<11,000	<5,100
		1h 19m	02/24/14	<7.9	3,400,000	<7.9	130	<5.1
		10m	03/24/14	<2,000	1,500,000	<2,000	<2,700	<1,300
		6m	04/21/14	<7,900	2,300,000	<7,900	<11,000	<5,100
		11m	07/07/14	<16	2,600,000	<16	580	<10
		10m	10/07/14	<1600	3,500,000	<1600	3400	<1000
		13m	01/05/15	<4,000	3,900,000	<4,000	24,000	<2,600
5m	03/23/16	<790	1,800,000	<790	6,300	<510		
SV-14	5	N/A	07/29/09	<28.94	227,177	<28.94	41.92	<18.66
		1 hr 29m	12/18/13	<4.0	250,000	<4.0	33	<2.6
		1 hr 12m	02/24/14	<7.9	200,000	<7.9	27	<5.1
		10m	03/25/14	<400	110,000	<400	<540	<260
		5m	04/22/14	<400	310,000	<400	<540	<260
		10m	07/07/14	<16	290,000	<16	38	<10
		10m	10/07/14	<160	310,000	<160	64 J	<100
		9m	01/05/15	210 J	450,000	<400	5,000	<260
6m	03/15/16	<7.9	81,000	<7.9	11 J	<5.1		
SV-20S	8	N/A	11/17/09	<69.4	257,085	<133	<94	<43.7
		19m	05/16/12	<63	140,000	<63	<86	<41
		10m	11/27/12	<63	120,000	<63	<86	<41
		N/A	01/08/13	<63	210,000	<63	100	<41
		1h	10/09/13	<4.0	330,000	<4.0	6.0	<2.6
		1h 15m	12/18/13	<4.0	230,000	<4.0	4.0J	<2.6
		10m	03/25/14	<4.0	300,000	<4.0	23	<2.6
		5m	04/22/14	<400	550,000	<400	<540	<260
		8m	07/07/14	<16	570,000	<16	<21	<10
		10m	10/06/14	<79	450,000	<79	340.0	<51
		19m	01/06/15	<790	390,000	<790	<1,100	<510
5m	03/15/16	<320	510,000	<320	<430	<200		
SV-27S	8	1h 17m	12/07/09	<23.4	419,604	<23.4	61.3J	<25.7
		12m	05/16/12	<1.6	2,200,000	<1,600	<2,100	<1,000
		1h 10m	10/09/13	<4.0	2,200,000	1.5	97	<2.6
		1h 9m	12/17/13	<4.0	1,600,000	<4.0	81	<2.6
		1h 3m	02/24/14	<7.9	2,000,000	2.5J	150	<5.1
		13m	03/24/14	<2,000	2,500,000	<2,000	<2,700	<1,300
		10m	04/21/14	<4,000	3,400,000	<4,000	<5,400	<2,600
		13m	07/07/14	19	1,700,000	<16	970	<10
		10m	10/07/14	30000	9,800,000	<1600	7800	1600
		9m	01/05/15	<16,000	4,100,000	<16,000	<21,000	<10,000
5m	03/15/16	<3,200	3,200,000	<3,200	6,400	<2,000		

Table 2: Analytical Data for Soil Gas **ADT 2**

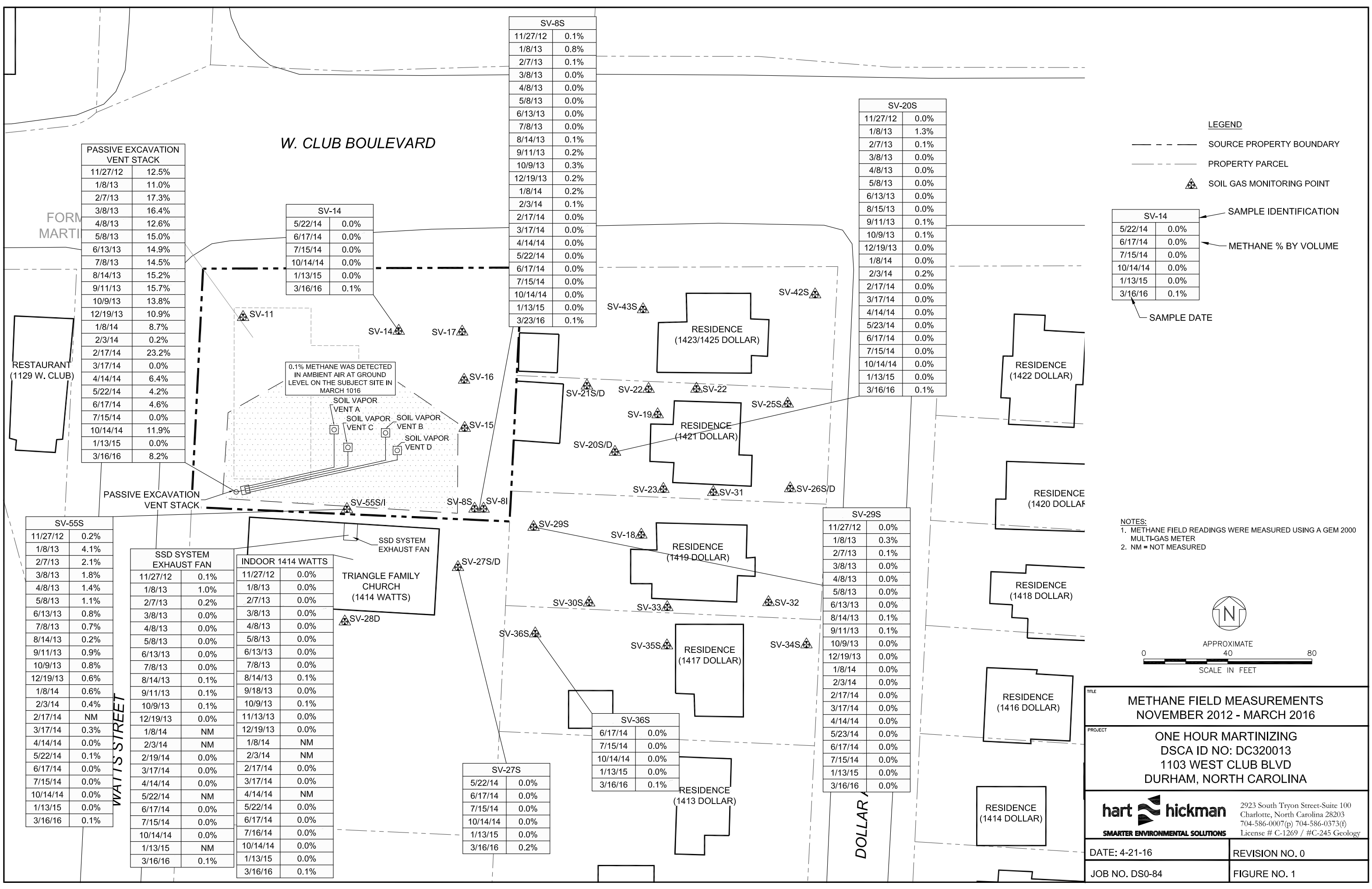
DSCA ID No.: DC320013

Sample ID	Depth [feet bgs]	Sample Duration ¹	Sampling Date (mm/dd/yy)	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
				[µg/m ³]				
SV-29S	8	N/A	11/17/09	<69.4	2,190,984	<133	<94	<116
		33m	05/17/12	<1,600	2,200,000	<1,600	<2,100	<1,000
		10m	11/27/12	<630	610,000	<630	<860	<410
		N/A	01/08/13	<630	810,000	<630	<860	<410
		1h 25m	10/09/13	<4.0	1,900,000	<4.0	34	<2.6
		1h 5m	12/18/13	<4.0	1,500,000	<4.0	26	<2.6
		1h 14m	02/24/14	<7.9	1,100,000	<7.9	31	<5.1
		10m	03/25/14	2,400	1,400,000	3,000	4,400	1,800
		9m	04/21/14	<4,000	3,000,000	<4,000	<5,400	<2,600
		10m	07/07/14	<16	1,600,000	<16	27	<10
		10m	10/06/14	<400	1,100,000	<400	<540	<260
		9m	01/05/15	<1,600	2,400,000	<1,600	<2,100	<1,000
		19m	03/15/16	<3,200	1,800,000	<3,200	<4,300	<2,000
SV-36S	8	50m	01/08/10	<4.35	470,000	<4.35	27.6	<4.79
		9m	05/17/12	<630	1,200,000	<630	<860	<410
		1h 32m	02/24/14	28	750,000	13	170	<5.1
		10m	03/25/14	43	1,400,000	26	270	<2.6
		6m	04/21/14	<2,000	2,700,000	<2,000	<2,700	<1,300
		10m	07/07/14	35	1,400,000	34	340	<10
		10m	10/07/14	<400	840,000	<400	270J	<260
		9m	01/05/15	<1,600	2,600,000	<1,600	1100 J	<1,000
		5m	03/15/16	<3,200	2,100,000	<3,200	<4,300	<2,000
SV-55S	5	15m	11/27/12	<630	1,200,000	<630	<860	<410
		N/A	01/08/13	<1,600	2,500,000	<1,600	<4,100	<1,000
		1h 5m	10/09/13	310	3,800,000	1.1 J	890	1.4 J
		1h 46m	12/18/13	<4,000	2,700,000	<4,000	<5,400	<2,600
		7h 3m	02/24/14	<7.9	140,000	<7.9	20	<5.1
		9m	03/24/14	<2,000	850,000	<2,000	<2,700	<1,300
		10m	04/21/14	<4,000	1,500,000	<4,000	<5,400	<2,600
		10m	07/07/14	<16	1,100,000	<16	680	<10
		10m	10/07/14	<400	780,000	<400	290J	<260
		10m	01/05/15	<790	480,000	<790	690 J	<510
10m	03/15/16	<7.9	94,000	<7.9	43	<5.1		
DWM Residential Soil Gas Screening Level				NE	278	NE	13.9	76.8
DWM Non-Residential Soil Gas Screening Level				NE	3,500	NE	175	2,790

Notes:
 1. NE = Not Established
 2. Division of Waste Management (DWM) Soil Gas Screening Levels (March 2016).
 3. J flag denotes estimated concentration between laboratory reporting limit and method detection limit.

FIGURES

S:\AAA-Master Projects\DC320013 - DSO\DS0-84 One Hr Martinizing (former B&B)\Reports (H&M)\2016-03_Soil Gas Sampling\DC320013_20160412_SoilGasFigures.dwg



PASSIVE EXCAVATION VENT STACK	
11/27/12	12.5%
1/8/13	11.0%
2/7/13	17.3%
3/8/13	16.4%
4/8/13	12.6%
5/8/13	15.0%
6/13/13	14.9%
7/8/13	14.5%
8/14/13	15.2%
9/11/13	15.7%
10/9/13	13.8%
12/19/13	10.9%
1/8/14	8.7%
2/3/14	0.2%
2/17/14	23.2%
3/17/14	0.0%
4/14/14	6.4%
5/22/14	4.2%
6/17/14	4.6%
7/15/14	0.0%
10/14/14	11.9%
1/13/15	0.0%
3/16/16	8.2%

SV-14	
5/22/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SV-8S	
11/27/12	0.1%
1/8/13	0.8%
2/7/13	0.1%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
7/8/13	0.0%
8/14/13	0.1%
9/11/13	0.2%
10/9/13	0.3%
12/19/13	0.2%
1/8/14	0.2%
2/3/14	0.1%
2/17/14	0.0%
3/17/14	0.0%
4/14/14	0.0%
5/22/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/23/16	0.1%

SV-20S	
11/27/12	0.0%
1/8/13	1.3%
2/7/13	0.1%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/15/13	0.0%
9/11/13	0.1%
10/9/13	0.1%
12/19/13	0.0%
1/8/14	0.0%
2/3/14	0.2%
2/17/14	0.0%
3/17/14	0.0%
4/14/14	0.0%
5/23/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SV-14	
5/22/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SV-55S	
11/27/12	0.2%
1/8/13	4.1%
2/7/13	2.1%
3/8/13	1.8%
4/8/13	1.4%
5/8/13	1.1%
6/13/13	0.8%
7/8/13	0.7%
8/14/13	0.2%
9/11/13	0.9%
10/9/13	0.8%
12/19/13	0.6%
1/8/14	0.6%
2/3/14	0.4%
2/17/14	NM
3/17/14	0.3%
4/14/14	0.0%
5/22/14	0.1%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SSD SYSTEM EXHAUST FAN	
11/27/12	0.1%
1/8/13	1.0%
2/7/13	0.2%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
7/8/13	0.0%
8/14/13	0.0%
9/11/13	0.1%
10/9/13	0.1%
12/19/13	0.0%
1/8/14	NM
2/3/14	NM
2/19/14	0.0%
3/17/14	0.0%
4/14/14	0.0%
5/22/14	NM
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	NM
3/16/16	0.1%

INDOOR 1414 WATTS	
11/27/12	0.0%
1/8/13	0.0%
2/7/13	0.0%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
7/8/13	0.0%
8/14/13	0.1%
9/18/13	0.0%
10/9/13	0.1%
11/13/13	0.0%
12/19/13	0.0%
1/8/14	NM
2/3/14	NM
2/17/14	0.0%
3/17/14	0.0%
4/14/14	NM
5/22/14	0.0%
6/17/14	0.0%
7/16/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SV-27S	
5/22/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.2%

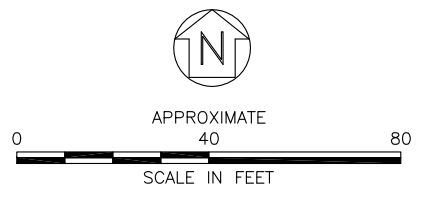
SV-36S	
6/17/14	0.0%
7/15/14	0.0%
10/14/14	0.0%
1/13/15	0.0%
3/16/16	0.1%

SV-29S	
11/27/12	0.0%
1/8/13	0.3%
2/7/13	0.1%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/14/13	0.1%
9/11/13	0.1%
10/9/13	0.0%
12/19/13	0.0%
1/8/14	0.0%
2/3/14	0.0%
2/17/14	0.0%
3/17/14	0.0%
4/14/14	0.0%
5/23/14	0.0%
6/17/14	0.0%
7/15/14	0.0%
1/13/15	0.0%
3/16/16	0.0%

LEGEND
 - - - - - SOURCE PROPERTY BOUNDARY
 - - - - - PROPERTY PARCEL
 ▲ SOIL GAS MONITORING POINT

▲ SAMPLE IDENTIFICATION
 ▲ METHANE % BY VOLUME
 ▲ SAMPLE DATE

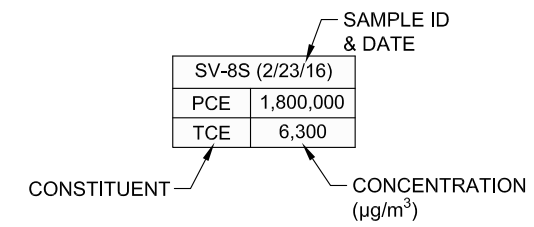
NOTES:
 1. METHANE FIELD READINGS WERE MEASURED USING A GEM 2000 MULTI-GAS METER
 2. NM = NOT MEASURED



TITLE METHANE FIELD MEASUREMENTS NOVEMBER 2012 - MARCH 2016	
PROJECT ONE HOUR MARTINIZING DSCA ID NO: DC320013 1103 WEST CLUB BLVD DURHAM, NORTH CAROLINA	
<small>2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f) License # C-1269 / #C-245 Geology</small>	
DATE: 4-21-16	REVISION NO. 0
JOB NO. DS0-84	FIGURE NO. 1

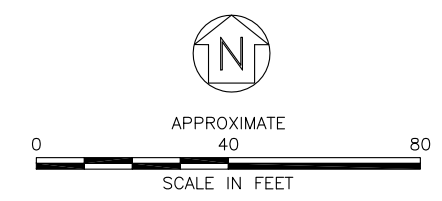
LEGEND

- SOURCE PROPERTY BOUNDARY
- - - PROPERTY PARCEL
- ▲ SOIL GAS MONITORING POINT

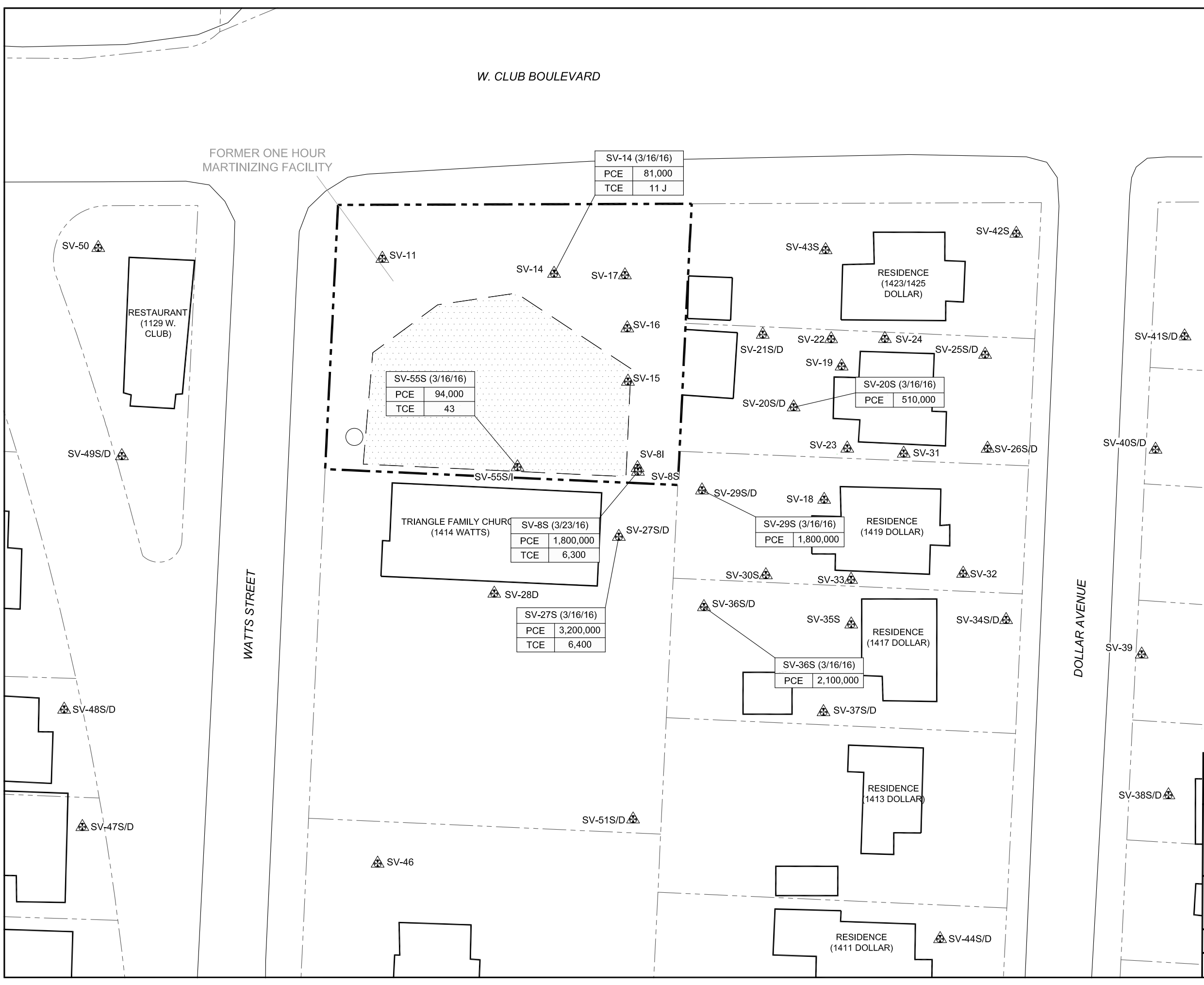


NOTES:

1. J DENOTES ESTIMATED CONCENTRATION BETWEEN LABORATORY REPORTING LIMIT AND METHOD DETECTION LIMIT.
2. SOIL GAS SAMPLES WERE COLLECTED ON MARCH 16 & 23, 2016 USING 1-LITER SUMMA CANISTERS.
3. ONLY DETECTED CONSTITUENTS ARE SHOWN ON FIGURE.
4. PCE = TETRACHLOROETHYLENE
TCE = TRICHLOROETHYLENE



SUBSURFACE SOIL GAS CONTAMINANT CONCENTRATION MAP (MARCH 2016)	
PROJECT ONE HOUR MARTINIZING DSCA ID NO: DC320013 1103 WEST CLUB BLVD DURHAM, DURHAM COUNTY	
hart hickman <small>SMARTER ENVIRONMENTAL SOLUTIONS</small>	<small>2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f) License # C-1269 / #C-245 Geology</small>
DATE: 4-8-16	REVISION NO. 0
JOB NO. DS0-84	FIGURE NO. 2



S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former BB&T)\Reports (H&H)\2016-03_Soil Gas sampling\DC320013_20150623_figure.dwg, Fig. 3, 4/8/2016 3:44:51 PM, zbarlow

ATTACHMENT A
PROJECT CALENDAR

~ May 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.			

~ June 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
<p>Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.</p>			1	2	3	4			
			5	6	7	8	9	10	11
			12	13	14	15	16	17	18
			19	20	21	22	23	24	25
			26	27	28	29	30		

~ July 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p>Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.</p>				1	2	
				3	4	5
			<div style="border: 2px solid black; padding: 5px; background-color: #e6e6fa;"> PlumeStop Post-Injection Groundwater Sampling </div>			
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

~ August 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.			

~ September 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.				1	2	3
			4	5	6	7
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

~ October 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p>Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.</p>						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

~ November 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

~ December 2016 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

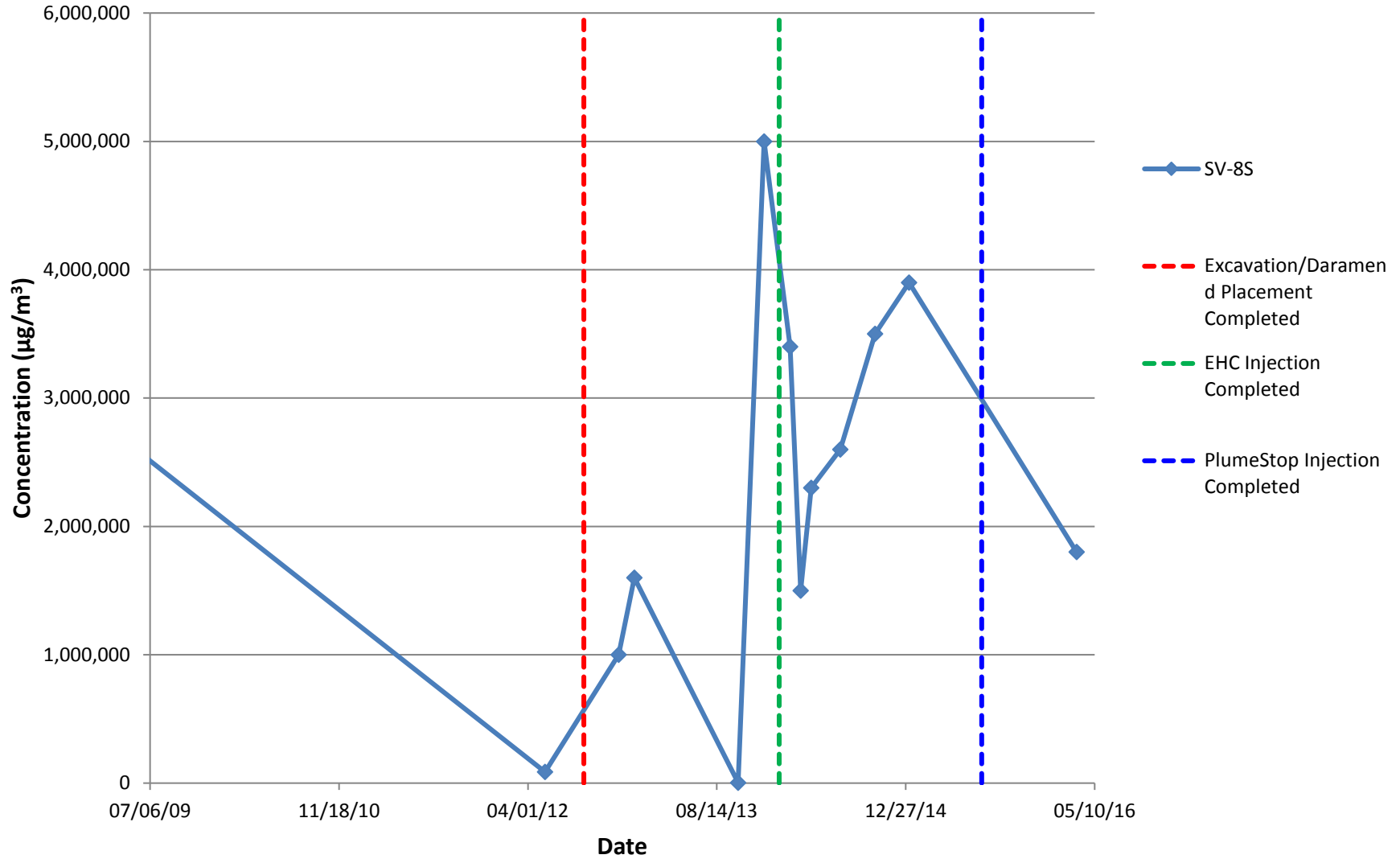
~ January 2017~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p>Note: Schedule tentative and subject to change. Please check https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/DSCA/One%20Hour%20Martinizing%202014/DC320013_20151215_Calendar.pdf regularly for any changes in the schedule.</p>						
1	2	3	4	5	6	7
			Annual Groundwater Sampling			
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

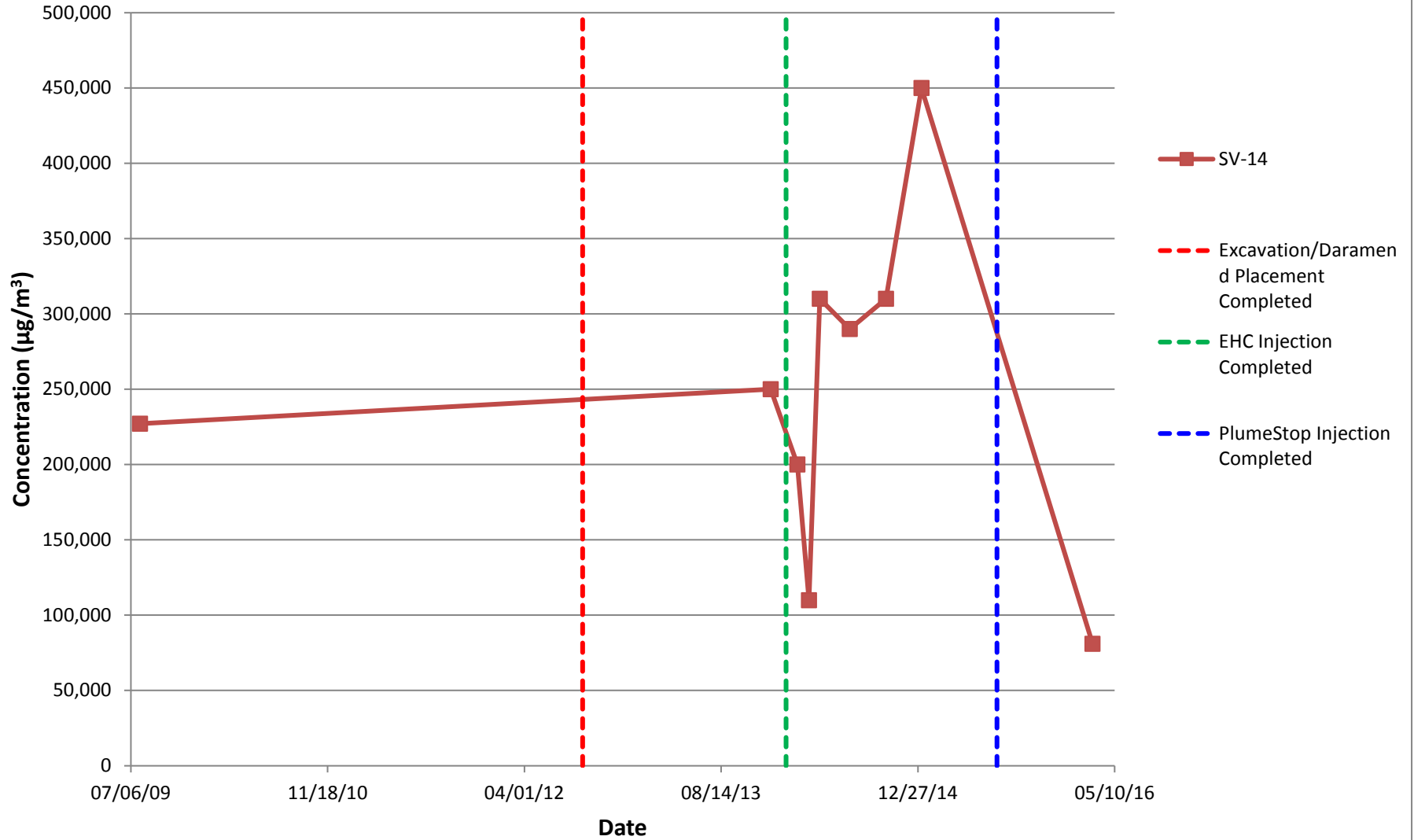
ATTACHMENT B

GRAPHS

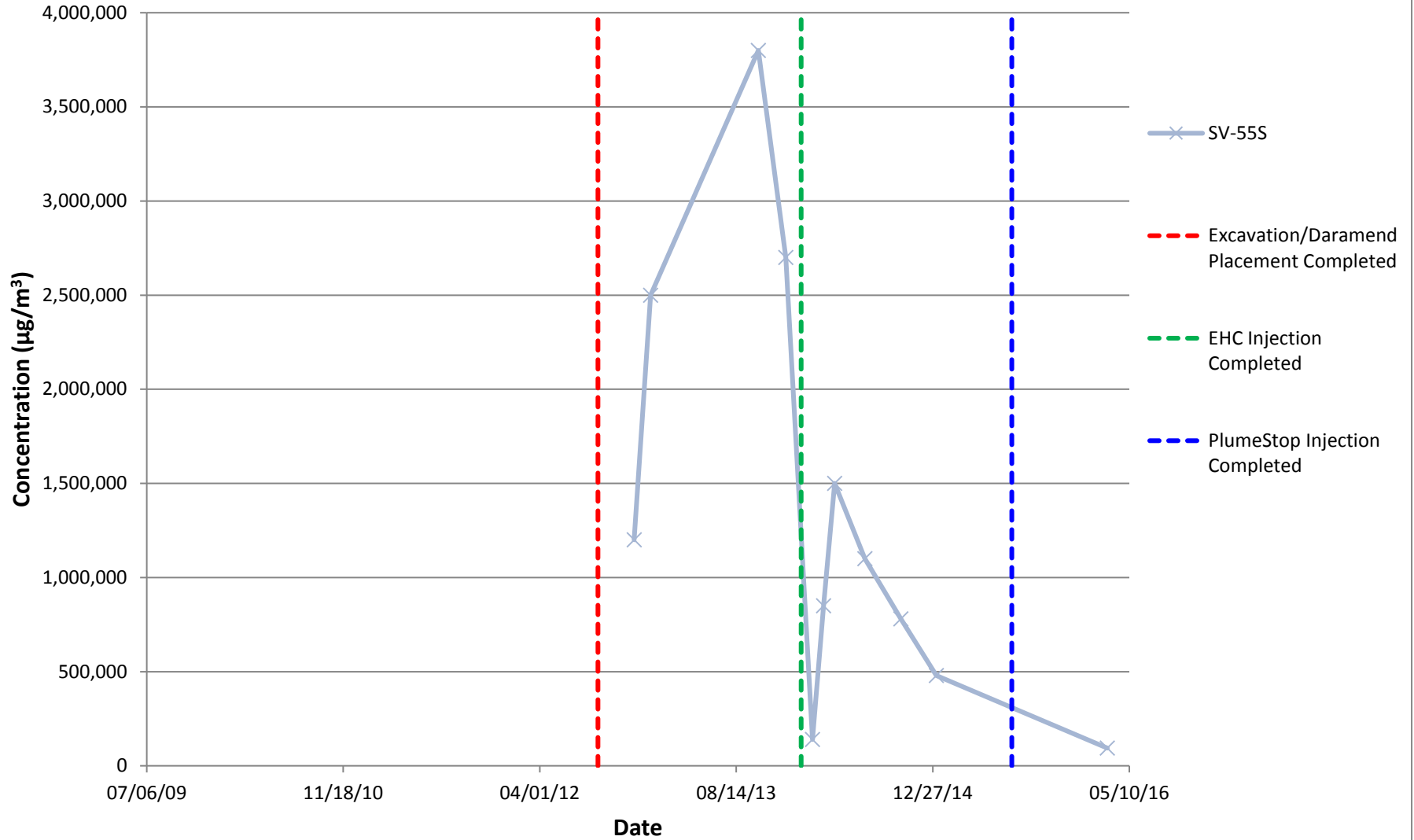
PCE Soil Vapor Concentrations vs. Time
SV-8S - 1103 West Club Blvd (Source Property)
One Hour Maritizing #DC320013
Durham, NC



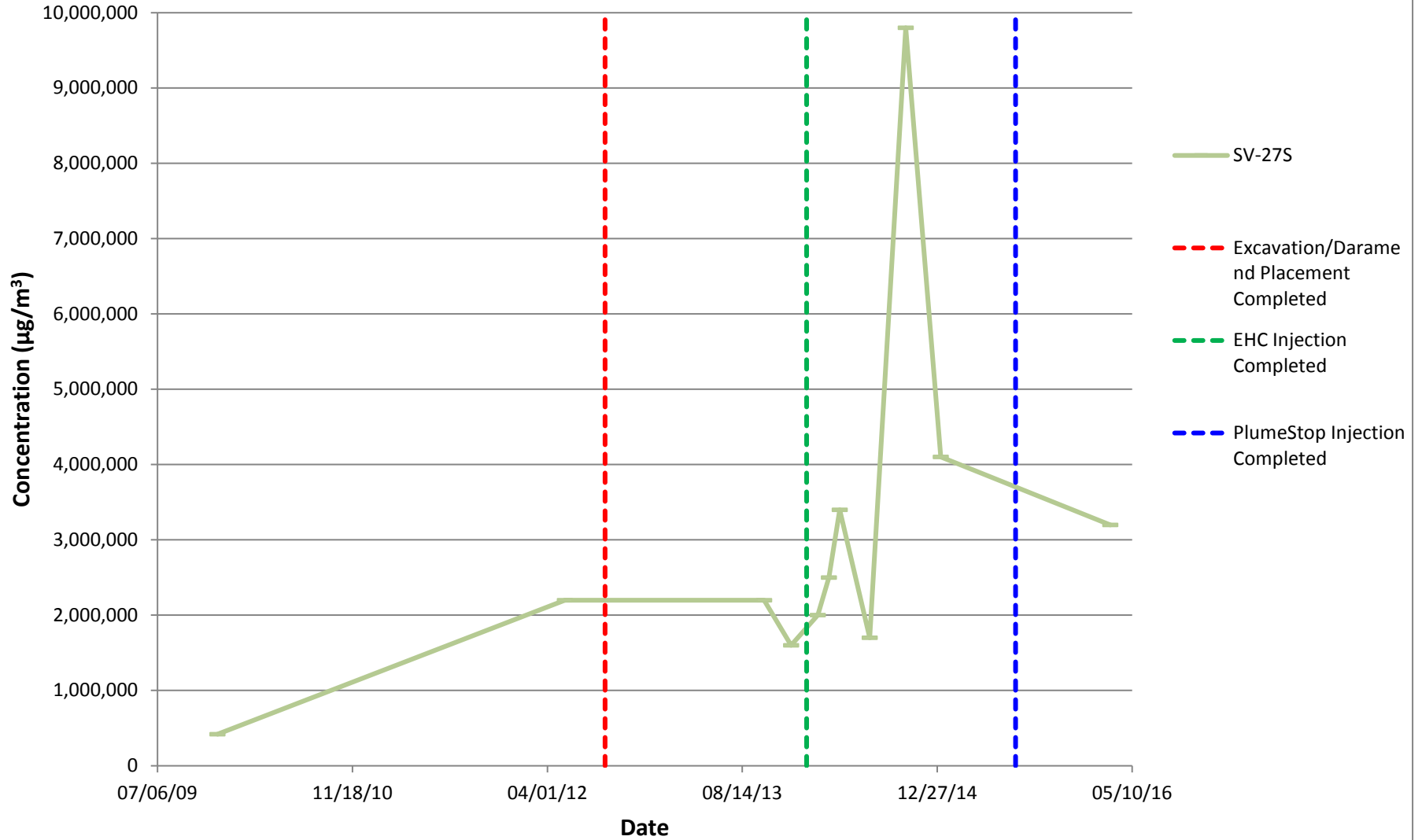
PCE Soil Vapor Concentrations vs. Time
SV-14 - 1103 West Club Blvd (Source Property)
One Hour Maritizing #DC320013
Durham, NC



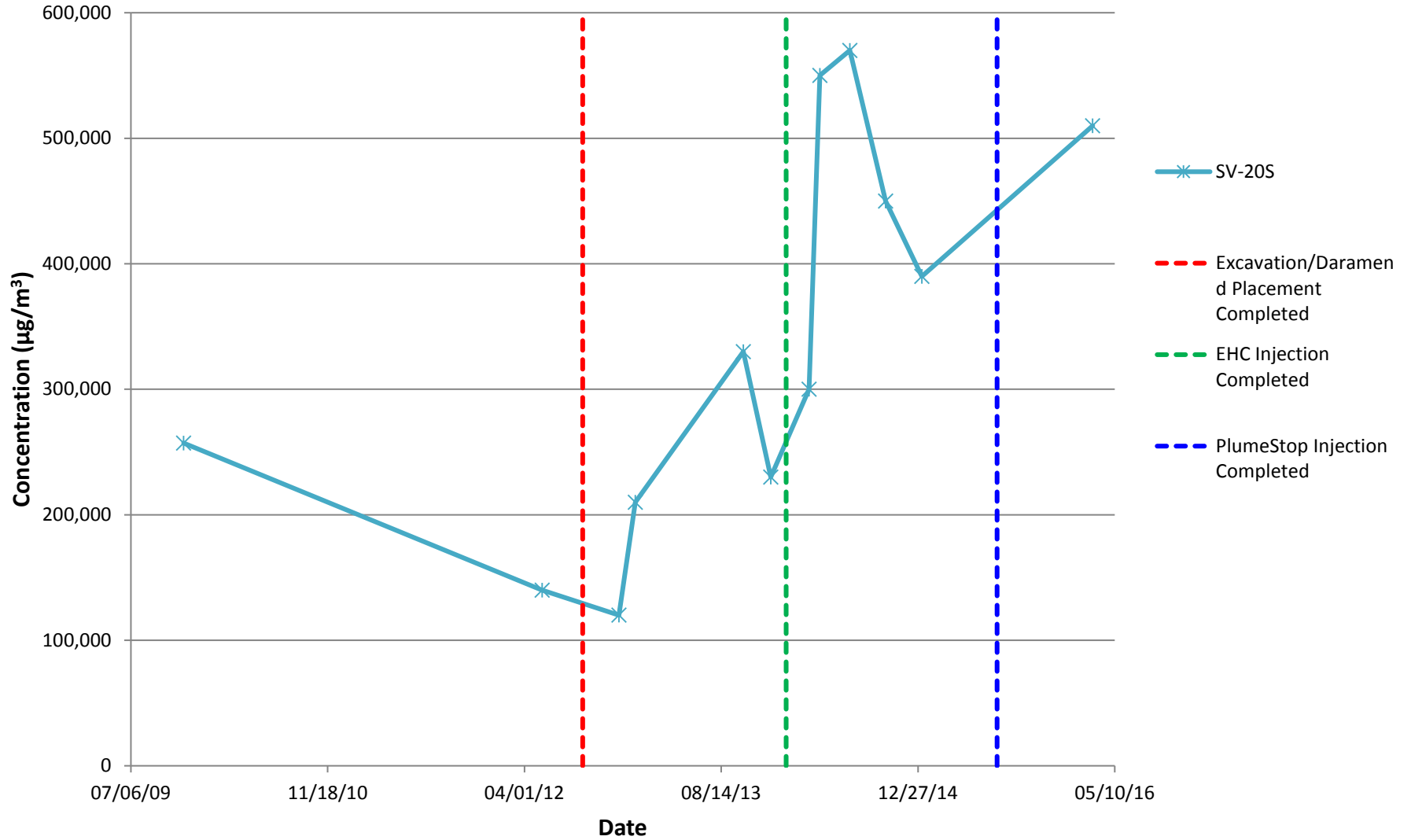
PCE Soil Vapor Concentrations vs. Time
SV-55S - 1103 West Club Blvd (Source Property)
One Hour Maritizing #DC320013
Durham, NC



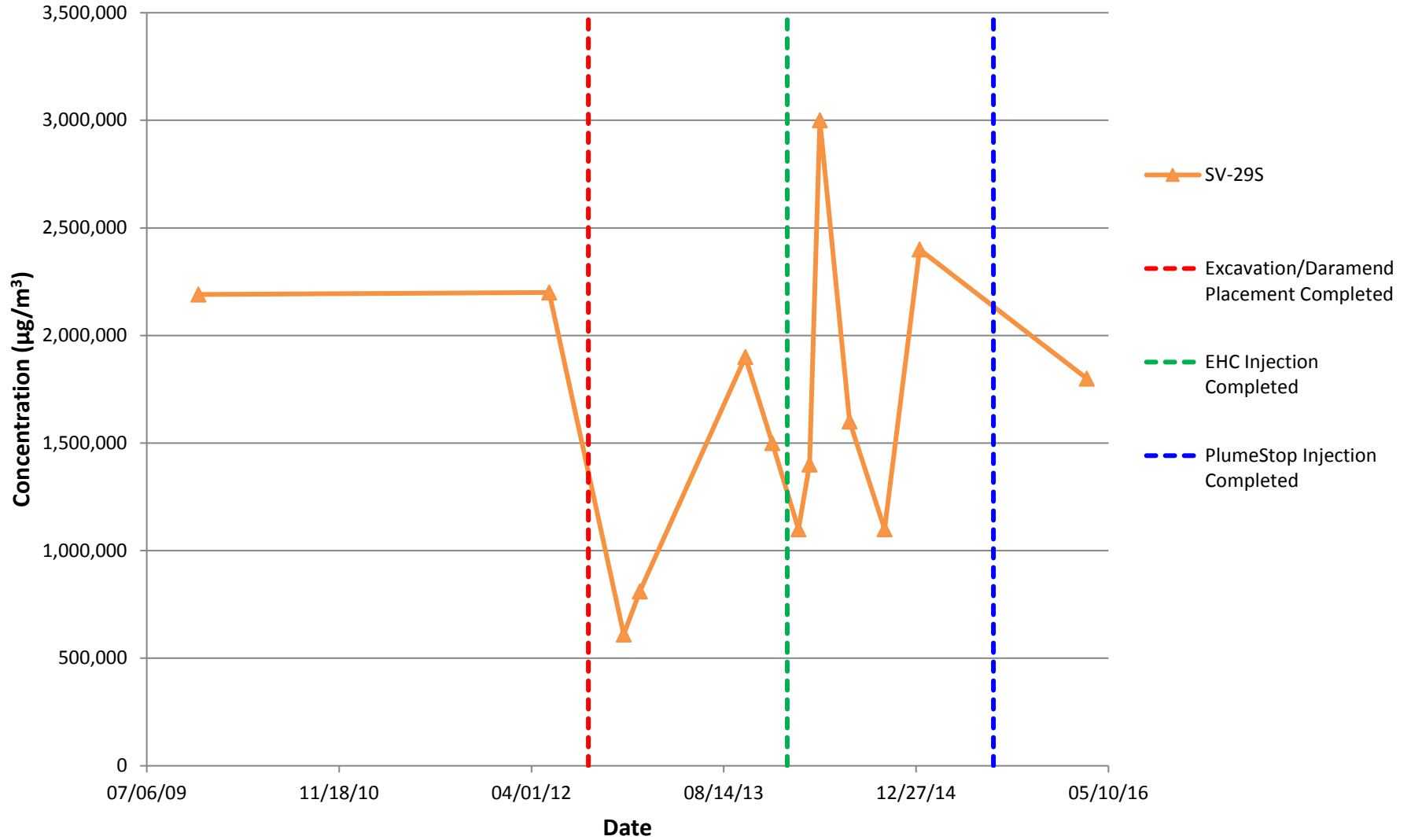
PCE Soil Vapor Concentrations vs. Time
SV-27S - 1414 Watts St (Triangle Family Church)
One Hour Maritizing #DC320013
Durham, NC



PCE Soil Vapor Concentrations vs. Time
SV-20S - 1421 Dollar Avenue
One Hour Maritizing #DC320013
Durham, NC



PCE Soil Vapor Concentrations vs. Time
SV-29S - 1419 Dollar Avenue
One Hour Maritizing #DC320013
Durham, NC



PCE Soil Vapor Concentrations vs. Time
SV-36S - 1417 Dollar Ave
One Hour Maritizing #DC320013
Durham, NC

